



WG-289 HIGH-VOLTAGE PROBE

LESS MULTIPLIER RESISTOR

RCA WG-289 High-Voltage Probe, when fitted with the proper multiplier resistor, is used to increase the dc-voltage range of voltmeters up to 50,000 volts. This probe is equipped with a microphone type connector and is intended for use with instruments such as the WV-98A, B, or C Senior VoltOhmyst® which can accommodate this connector. The WG-289 is especially suited for the measurement of high voltages in television receivers and other equipments which have high-impedance circuits.

Most vacuum-tube voltmeters have a constant input resistance of 11 megohms on all dc ranges. The input resistance includes the 1-megohm isolating resistor in the dc probe. This feature permits the use of a single multiplier resistor to increase the range of all dc measurements by the same factor.

The WG-289 in combination with the WG-206 Multiplier Resistor has an input resistance of 1090 megohms. When used with a VoltOhmyst such as the WV-98A, the combined input resistance is 1100 megohms. This value of input resistance is 100 times as great as the input resistance of the VoltOhmyst (11 megohms) when the instrument is used to make dc voltage measurements. The dc voltage range is, therefore, increased by a factor of 100. For example, the WV-98A VoltOhmyst, when used with the WG-289 in combination with the WG-206, provides full-scale ranges of 150, 500, 1500, 5000, 15000, and 50000 volts. (The 1500 volt scale or range is not used).

SAFETY PRECAUTIONS

Although the WG-289 is designed to minimize the possibility of shock, it is assumed that the user is familiar with the necessary precautions for safe measurement of high voltages. When making measurements always observe the safety precautions listed below.

1. Know the equipment under test, and locate all high-voltage points before work is started. Be extremely careful with receivers or other electrical appliances which do not use pulse-operated or rf power supplies.
2. Do not work alone. Notify another person that you are making high-voltage tests.
3. Work with one hand, and keep the other hand in pocket.
4. Don't depend on the insulation of a high-voltage wire for protection.
5. Avoid contact between any part of the body and any object that can provide a ground.

6. Always measure the supply voltage at the second-anode terminal of the picture tube, if possible. (Most TV receivers have a current-limiting resistor which limits the available power at the second-anode terminal.)
7. Remember that high voltage may appear at unexpected points in defective equipment. Furthermore, bleeder resistors may be open and capacitors may retain heavy charges although power is off. A high-resistance voltage source may become a low-resistance (high-power) source, if the current-limiting resistor becomes shorted.
8. Remember that many picture tubes have a conductive coating which serves as a capacitor. This coating discharges slowly.
9. Screwdrivers should not be used to discharge filter capacitors. Use only a grounded chain or wire attached to the end of a long Bakelite rod.
10. Remember that high voltages will discharge from point to point or from point to air (corona). Keep hand closed on handle of probe and in the clear away from all high-voltage points.
11. When using, place the probe in such a manner that the guard-ring will be closer to any high-voltage danger point than is the handle.
12. Keep your hands, shoes, floor, and test bench absolutely dry.
13. Make sure that the probe has no dirt, grit, or grease on its surface or handle.

ASSEMBLY

1. Unscrew the handle from the probe body. Do not touch or mar the guard ring.
2. Place multiplier resistor in the space provided. Avoid sharp blows or scratches that might damage the resistor element.
3. Replace handle.

APPLICATION

To use the probe, proceed as follows:

1. Screw the microphone connection onto the microphone jack on the VTVM.
2. Set the Range Selector to the proper voltage range.

3. Connect the ground clip of the WG-289 to the ground of the equipment under test.
4. Hold the high-voltage probe by the handle (black) only and touch the probe tip to the test point. Be sure that the guard ring on the probe is closer to the test point than is the handle. Note the meter reading.
5. Multiply the reading by the scale factor to give the actual voltage. For example if the scale reading is 225 volts on the WV-98A, the actual voltage is 22,500 volts.
6. When taking measurements around 50,000 volts, keep the probe tip on the test point only long enough to take a reading, to prevent possible inaccuracies due to heating of the multiplier resistor.

MAINTENANCE

Always keep the high-voltage probe clean and dry; disassemble the probe, if necessary, to dry the interior. Wipe the probe body with a dry cloth before measurement is made.

In case of erratic operation, check the meter to determine whether it operates properly on the dc ranges. If meter operation is satisfactory, check the cable and the connectors by measuring for continuity in the cable. The resistor may be checked by using an ohmmeter which can measure very high resistance values, or by means of dc measurements as described in the instruction booklet supplied with the WV-98A.

REPLACEMENT PARTS LIST

Description	Stock Number
Clip, alligator.....	35262
Connector, microphone type.....	48982
Handle, probe - polystyrene (black).....	58868
Probe, body and tip assembly - polystyrene (red).....	58867
Resistor, multiplier - 1090 meg., $\pm 2\%$Type No.	WG-206

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